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Date: August 23, 1999

Re: Inventor(s): Gad Janay

Title: **TERMINAL EMULATOR WITH REMOTE  
DOWNLOADABLE CONFIGURABILITY**

Attorney Docket No.: 030/1

Box PATENT APPLICATION  
Assistant Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

Submitted herewith is the above-identified divisional application under 37 C.F.R. 160. Also enclosed are:

- 1) A Preliminary Amendment;
- 2) a self-addressed, stamped return postcard;
- 3) 2 sheets of informal drawings;
- 4) a check in the amount of \$380.00; and
- 5) Copies of Assignment, Declaration and Small Entity form from parent case.
- 6) Petition for Extension of Time w/check in the amount of \$190.00.

Respectfully submitted,

KAPLAN & GILMAN, L.L.P.

Jeffrey I. Kaplan  
Reg. No. 34,356

AIK/JIK/pa  
Enclosures

## CERTIFICATE OF MAILING

Express Mail mailing label number: EL069665257US  
Date of Deposit: August 23, 1999

I hereby certify that this paper or fee is being deposited with the United States Postal Service Express Mail Post Office to Addressee service under 37 C.F.R. §1.10 on the date indicated above and is addressed to Box PATENT APPLICATION, Assistant Commissioner for Patents, Washington, D.C. 20231

Jeffrey I. Kaplan

(Typed or printed name of person mailing paper or fee)

(Signature of person mailing paper or fee)

Applicant or Patentee: Gad Janay and Todd Yampel Attorney's Docket  
Serial or Patent No.: 08/889,975 30/1  
Filed or Issued: July 10, 1997  
Title: CONFIGURABLE TERMINAL CAPABLE OF COMMUNICATING WITH VARIOUS  
REMOTE COMPUTERS

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS  
(37 CFR 1.9(f) and 1.27(c)) - SMALL BUSINESS CONCERN

I hereby declare that I am

- ☐ the owner of the small business concern identified below:  
☒ an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF CONCERN Advanced Transition Technologies, Inc.

ADDRESS OF CONCERN 33 MAIDEN LANE 9TH FL.  
NEW YORK NY 10038

I hereby declare that the above-identified small business concern qualifies as a small business concern as defined in 13 CFR 121.3-18, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees under Section 41(a) and (b) of Title 35, United States Code, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention, entitled: \_\_\_\_\_

CONFIGURABLE TERMINAL CAPABLE OF COMMUNICATING WITH VARIOUS REMOTE COMPUTERS  
by inventor(s) Gad Janay and Todd Yampel described in

- ☐ the specification filed herewith  
☒ application Serial No. 08/889,975, filed 7/10/97  
☐ Patent No. \_\_\_\_\_, issued \_\_\_\_\_

If the rights held by the above-identified small business concern are not exclusive, each individual, concern or organization having rights to the invention is listed below\* and no rights to the invention are held by any person, other than the inventor, who could not qualify as a small business concern under 37 CFR 1.9(d) or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e). \*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

**Applicant** : **Gad Janay**  
**Title of Invention** : **CONFIGURABLE TERMINAL CAPABLE OF  
COMMUNICATING WITH VARIOUS REMOTE  
COMPUTERS**  
**Filed** : **July 10, 1997**  
**Serial No.** : **08/889,975**

**Assistant Commissioner for Patents**  
**Washington, DC 20231**

**PRELIMINARY AMENDMENT**

Dear Sir:

Please amend the above application, prior to calculating the filing fee, as follows:

**IN THE CLAIMS:**

Please cancel claims 1-7.

8. The method of communicating between a host computer and a remote terminal over a data network comprising steps of:

establishing a first communication session between said terminal and a communications server via a first communications channel;

downloading, from said server to said terminal, communications software for communicating between said terminal and said host and a table of screen recognition information;

utilizing said communications software and said table of screen recognition information to implement a second communications session between said terminal and said host via a second communications channel;

receiving, during said second communications session, at least one screen of

information from said host at said terminal;

decoding each said screen of information, including decoding screen identification information using, at least in part, said table of screen recognition information, at said terminal;

sending the decoded screen of information, including decoded screen identification information, to said server over said network; and

in response to said step of sending, transmitting from said server to said terminal, presentation information specifying how information received from said host at said terminal should be presented to a user of said terminal.

9. The method of claim 8 further comprising the step of specifying, during said first communications session, which communications software is desired to be downloaded.

10. The method of claim 8 wherein:

said first communication channel is a first set of packets transceived along said network; and

said second communication channel is a second set of packets transceived along said network.

#### **REMARKS**

This application is a continuation of 08/889,975. In the parent case, claims 1-6 were rejected. The Examiner rejected claims 1-4 and 6 under 35 U.S.C. §103(e) as being anticipated by Butts, and rejected claim 5 under 35 U.S.C. §103(a) as being unpatentable over Butts.

Claims 7-10 were not reviewed as they raise new issues that would require further consideration and search. Claim 7 has been canceled from the previous amendment filed March 22, 1999, claim 7 was dependant upon claim 1 and as such was canceled. The Examiner is requested to reference the parent case for the prior art used to reject the claims presented herein.

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In order to adequately determine the merits of the claims presented in this continuation, a brief review of the applicants' invention is necessary. The applicants' invention utilizes a method whereby a client communicates with a host, and subsequently communicates with a server to decipher instructions given to the client by the host. In practice the client initiates contact with the host by establishing a datalink with the host, the client then provides information and requests instructions. The host provides coded instructions via datalink to the client which the client cannot decode by itself. The client then establishes a separate and independent datalink with a server which is in no way attached to the host. Coded information is transferred by the client to the server. The server decodes and sends uncoded instructions back to the client that the client converts into a specific graphical user interface (GUI) interface.

Newly added claims 8-10 are described at pages 4-8 of applicants' originally submitted application. Independent claim 8 specifically discloses that a table of screen recognition information is downloaded to the terminal, where it is used to decode screen identification information. It also discloses the process of receiving, decoding and sending screen information in general. As the applicant has stated in its previous office action response, the receiving, decoding and sending of screen information is not taught in the prior art. Neither are the specific steps using a table of screen recognition information disclosed in the prior art.

The use of a dedicated server by the client for the sole purpose of determining which data code has been received, decoding that data code, and supplying the screen identification information to the client is unique and specific only to this applicants' invention. The method described in claim 8 of this application is very specific, it describes a method by which a client terminal communicates with a host, the host sends coded instructions down a data line back to the client, the client then communicates with a sever sending coded information to the server that is then processed and returned to the client by the server. The order in which each unit is

activated is important because it is integral to the method. For each element involved, the client, the server, and the host, the sequence of activation as noted by claim 8 helps to illustrate the unobviousness of the invention and is clearly not anticipated by any prior art.

It is basic that the claims define the scope of the invention and "every portion of the ...claims must be considered in determining the invention as a whole in arriving at ... [a] decision as to obviousness required by . . . section 103", In re Duva, 156 USPQ 90, 94 (CCPA, 1967); and it is also basic that interpretation of the claims must be made " in the light of the . . . specification", Ex parte Tieman, 157 USPQ 158 (Dd. Of Appeals, 1967). In this connection, it is improper for the Office to invoke the knowledge of one skilled in the art to interpret and combine references as a basis for rejection but ignore that knowledge when establishing the context for the inventive concept of the disclosure and when interpreting the claims. It should also be noted that, "the teachings of the prior art would of themselves, and without the benefit of appellants' disclosure, suggest that which the applicant has taught", In re Leonor, 158 USPQ 20 (CCPA, 1968). See also In re Mergner, 158 USPQ 324 (CCPA, 1968) wherein the court stated that they should be "[m]indful of the admonition of the Supreme Court to avoid an evaluation of obviousness or nonobviousness of an invention by using hindsight".

Applicant has carefully studied the references as those references apply to the claimed subject matter of claim 8 keeping in mind the foregoing decisions, and believes that reconsideration in light of this amendment is proper.

Claims 9 and 10 are dependent upon claim 8, and are believed to be patentable for at least the reasons set forth therein.

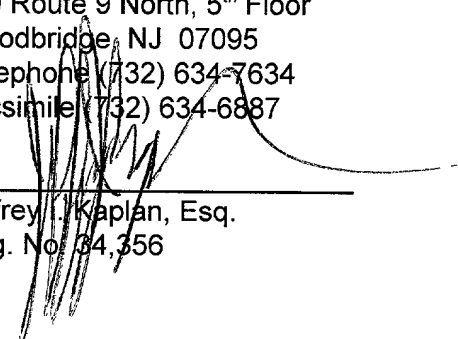
Reconsideration and allowance are respectfully requested. If the Examiner believes that there are further issues preventing the case from passing to allowance, he is requested to telephone if at all possible.

The Examiner is authorized to deduct additional fees believed due from our Deposit  
Account No. 11-0223.

Respectfully submitted,

KAPLAN & GILMAN, L.L.P.  
900 Route 9 North, 5<sup>th</sup> Floor  
Woodbridge, NJ 07095  
Telephone (732) 634-7634  
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DATED: August 23, 1999



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Jeffrey I. Kaplan, Esq.  
Reg. No. 34,356

CONFIGURABLE TERMINAL CAPABLE OF  
COMMUNICATING WITH VARIOUS REMOTE COMPUTERS

TECHNICAL FIELD

5           This invention relates to computer terminals, and more specifically, to an improved configurable computer terminal which can emulate a variety of different terminals and implement a variety of different communications protocols, depending upon which of a plurality of remote computers with which it is communicating.

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BACKGROUND OF THE INVENTION

Large main frame computers have been in use for many years. With the onset of personal computers however, many applications have moved towards being implemented as distributed systems. Specifically, many applications are now implemented by employing a plurality of personal computers on a network, each of which implements one or more functions required to implement an entire application or system.

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Notwithstanding the widespread use of personal computers, the applications operating on large mainframe computers continue to be used. Moreover, given the large transaction cost to convert systems running on large mainframes to PC based systems, it is unlikely that the large mainframe systems will be obsolete any time soon. Additionally, there are certain applications which may be implemented better on a large mainframe computer, such as an IBM S/390 or AS400. Accordingly, many systems remain in use which utilize these large mainframes.

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5 The large mainframes were initially designed to communicate with "dumb" terminals. However, recently it has become popular to utilize a personal computer instead of a dumb terminal, and to have the personal computer emulate the dumb terminal. Thus, the remote host believes it is communicating with a dumb terminal but it is actually communicating with a personal computer which presents the communications interface of a dumb terminal. Such a system allows the personal computer to interpret and reformat some of the information being transferred between the host computer and the terminal emulator so that a more user friendly interface is presented by the terminal emulator.

15 Most applications running on the host download to the terminal emulator a "green screen", a textual screen which is known to those in the computer industry and which is usually very user unfriendly. U.S. Patent No. 5,530,961 ("the '961 patent"), assigned to the same assignee as the present invention, describes a technique for identifying these green screens and presenting them in a graphical user interface (GUI) format. As taught by the '961 patent, the green screens are identified using one of a plurality of specific algorithms, and then the presentation of that screen is determined by a table look up.

20 U.S. patent application serial No. 08/722,583 ("the '583 application") also describes a plurality of screen recognition algorithms. Any of the algorithms and techniques set forth in the

'583 application or the '961 patent may be utilized to change a "green screen" to a more user friendly interface at a personal computer. Both the '961 patent and the '583 application are incorporated herein by reference.

5

While the '961 patent and the '583 application describe a technique which is a great improvement over the prior art, there is a potential storage and overhead problem presented by such arrangements. Specifically, there could be hundreds if not thousands of possible different screens being downloaded from the host to the terminal. This results in an extremely large table having to be stored in each terminal. Moreover, most host computers communicate with many terminals and many terminals communicate with multiple hosts. Accordingly, each terminal emulator must be able to maintain sufficient information to implement the communications software for a variety of different hosts, and to be able to identify and graphically present all of the screens which may be downloaded from each of the hosts.

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#### SUMMARY OF THE INVENTION

A technical advance is achieved in accordance with the present invention which relates to a method and apparatus for providing a terminal emulator with the ability to emulate a variety of different terminals and to identify a plurality of different screens. The invention is particularly applicable to thin clients, such as Network Computers (NCs), which are used in Internet

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applications.

When the thin client desires to emulate the terminal and connect to a particular host, communications over a network are first established with a remote server, which downloads to the NC the appropriate communications software for communicating with a particular host. The communications software is then used to establish communications between the NC and the selected host.

Thereafter, as host screens are downloaded to the terminal emulator, the terminal emulator performs the screen recognition algorithm, and sends the results to the server. The server then returns to the terminal emulator the appropriate parameters for displaying the screen in GUI format.

In accordance with the foregoing, the terminal emulators may all be NC terminals since all of the tables and communications software are stored at a specified one or more servers. Moreover, it is not necessary to store all of the information required for the GUI screens at all of the terminals, as each can contact the server via, for example, the Internet.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 shows a conceptual block diagram of a terminal emulator connected to a host computer over a network for purposes of implementing the techniques of the present invention: and

Figure 2 shows a flow chart of exemplary software resident on a terminal emulator which can be used to implement the techniques of the present invention.

5 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Figure 1 shows a conceptual diagram of a network 101 and several computers and servers connected thereto. The network 101 is preferably the Internet, but may be any local area network (LAN) or wide area network (WAN). The network includes many thousands of  
10 computers, servers, and other similar items, several of which are shown for purposes of explanation.

The example of Figure 1 shows an NC terminal 104 which will be used for exemplary purposes herein. However, it should be  
15 understood that the invention is applicable to a variety of computing devices.

In operation, an exemplary NC terminal 104 is used to establish a communications session with a particular host 102. The  
20 host 102 is an IBM 3270 type of host which communicates with its terminals using a specified protocol, and includes a plurality of particular screens which it can download to terminals and which are dependent upon the particular applications actually running on host  
102.

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When the connection is desired to be made, NC terminal 104 of Figure 1 first connects with server 103 using standard Internet protocols. Server 103 includes various files of software which contain the appropriate communications software for communicating with a variety of host computers, one of which is the IBM S/390 utilizing the TN3270 protocol for communications. The software for 3270 communications is downloaded to NC terminal 104 which may then utilize the software for communicating with host 102.

Additionally, the server 103 downloads to NC terminal 104 a table containing the unique identification numbers which will be generated by each screen downloaded from the host when the screen recognition algorithms of the '961 patent, or other such screen recognition algorithms, are executed. For each such unique identification number, there is a 4 digit tag. An exemplary such table, denoted a screen table, is shown below.

<u>Unique ID</u>	<u>Tag</u>
123456	A002
579182	B013
613247	A005
421685	A042
683217	B401

Optionally, NC terminal 104 may send to server 103 information regarding with which host it will be communicating. In such a scenario, server 103 may download only the communications software required for terminal 104 to communicate with host 102, and the appropriate screen tables. Alternatively, server 103 may download software and screen tables for all of the possible hosts, and terminal 104 may then select the appropriate information to use.

During the implementation of a particular application, host 102 downloads a variety of different screens. These green screens, as they are called, are processed through screen recognition algorithms such as that described in the previously incorporated '961 patent and '583 application. The processing of each screen generates a unique identification number. The table previously downloaded to the NC is utilized to ascertain the tag from the unique identifier.

After the screen is processed, NC terminal 104 communicates with server 103. More specifically, the screen identifier is sent to server 103, and server 103 then locates the proper GUI interface information. The GUI information, which prescribes how to present the information in graphical form, is sent to NC terminal 104.

Figure 2 shows a flow chart of the software which may be resident in NC terminal 104 for implementing the configurable terminal in accordance with the techniques of the present invention. The flow chart is intended to show only the high level steps, as the programming details will be apparent to those of skill in this art.

After communications with server 103 is established at block 201, the communications software for communicating with a specified host is downloaded to NC terminal 104. Download screen ID 203 downloads the table of information from server 103 to terminal 104

for identifying the particular screen which has been downloaded from host 102. The connection from NC terminal 104 to host 102 is established at block 204, which implements a prescribed communication protocol.

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Once the communications connection is established, screens of information, depending upon the particular application being run, will be downloaded from host 102 to NC terminal 104. These screens of information are waited for at block 205 by the NC terminal 204.

10 The screen of information is then placed into a presentation space and it is recognized using a screen recognition procedure at block 207. The particular screen recognition algorithm used is not critical to the present invention but may be of the type described in the '961 patent.

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After the screen is recognized and a screen ID is generated, the decision point 208 determines whether or not such screen is contained in the screen table at the server. If it is, then the tag is sent to the server and customization data is obtained from the server at block 209. The customized GUI screen is presented to the user at block 210.

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On the other hand, if the list of screen IDs previously downloaded at block 203 does not contain the ID generated, then a default GUI screen is presented. The default screen may be of any type desired by the user.

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At block 212 a keyboard input, often including parameters entered into the GUI screen, is processed.

If there is a request for special services which may be resident only at server 103, then blocks 214 and 215 implement the functions of obtaining the special services and presenting them to the user. If there is no request for special services, then the keyboard input is simply processed in accordance with the application, and the algorithm returns to block 205 to await downloading of the next set of information from host 102.

Special services may include a variety of items dependant upon the screen and/or position of the cursor on the screen. For example, context sensitive help, lists of valid values for a field, display of signatures associated with the field, etc..

The special services may be downloaded in a manner similar to that utilized for downloading screens of information. Specifically, as previously explained, a tag is generated from the unique screen ID associated with each downloaded screen of information. The NC terminal utilizes the tag with a suffix in order to request that the GUI screen information be downloaded from the server. Thus, after tag B013, for example, is generated, a message indicating that the GUI screen information for screen B013 is being requested may be sent from the NC terminal to the server 103. This results in the server downloading the GUI screen



information to NC terminal 103.

One way of performing the foregoing is to simply send a message from NC terminal 104 to server 103 requesting B013.SCR, where the suffix SCR indicates that the screen information is requested.

When special services are being requested, such services may be dependent upon not only a screen of information at the NC terminal, but the location of the cursor on that screen. Thus, the aforementioned suffix may be replaced with a suffix indicating row and column number of the cursor. This would indicate the particular field where the cursor is, and thus an appropriate file at server 103 which contains information relevant to that field will be downloaded to NC terminal 104.

While the above describes the preferred embodiment of the invention, it is understood that various modifications and additions will be apparent to those of ordinary skill in the art. Such modifications are intended to be covered by the following claims.

CLAIMS:

1. The method of communicating between a host computer and a remote terminal over a data network comprising the steps of:

establishing a first communication session between said terminal and a communications server;

downloading, from said server to said terminal, communications software for communicating between said terminal and said host;

utilizing said communications software to implement a second communications session between said terminal and said host.

2. The method of claim 1 further comprising the step of specifying, during said first communications session, which communications software is desired to be downloaded.

3. The method of claim 1 further comprising: receiving, during said second communications session, information from said host at said terminal;

decoding the information at said terminal;

sending the decoded information to said server over said network;

in response to said step of sending, transmitting from said server to said terminal, presentation information specifying how information received from said host at said NC terminal should be presented to a user of said terminal.

4. The method of Claim 3 further comprising:

identifying, at said terminal, cursor position and screen information, said information being based upon which screen is being displayed and a position on that screen of a cursor;

5 assembling, at said terminal, a data structure indicative of said cursor position and screen information;

transmitting said data structure to said server; and conveying, in response to said step of transmitting, context sensitive display information from said server to said terminal.

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5. The method of claim 4 wherein said terminal is an NC terminal.

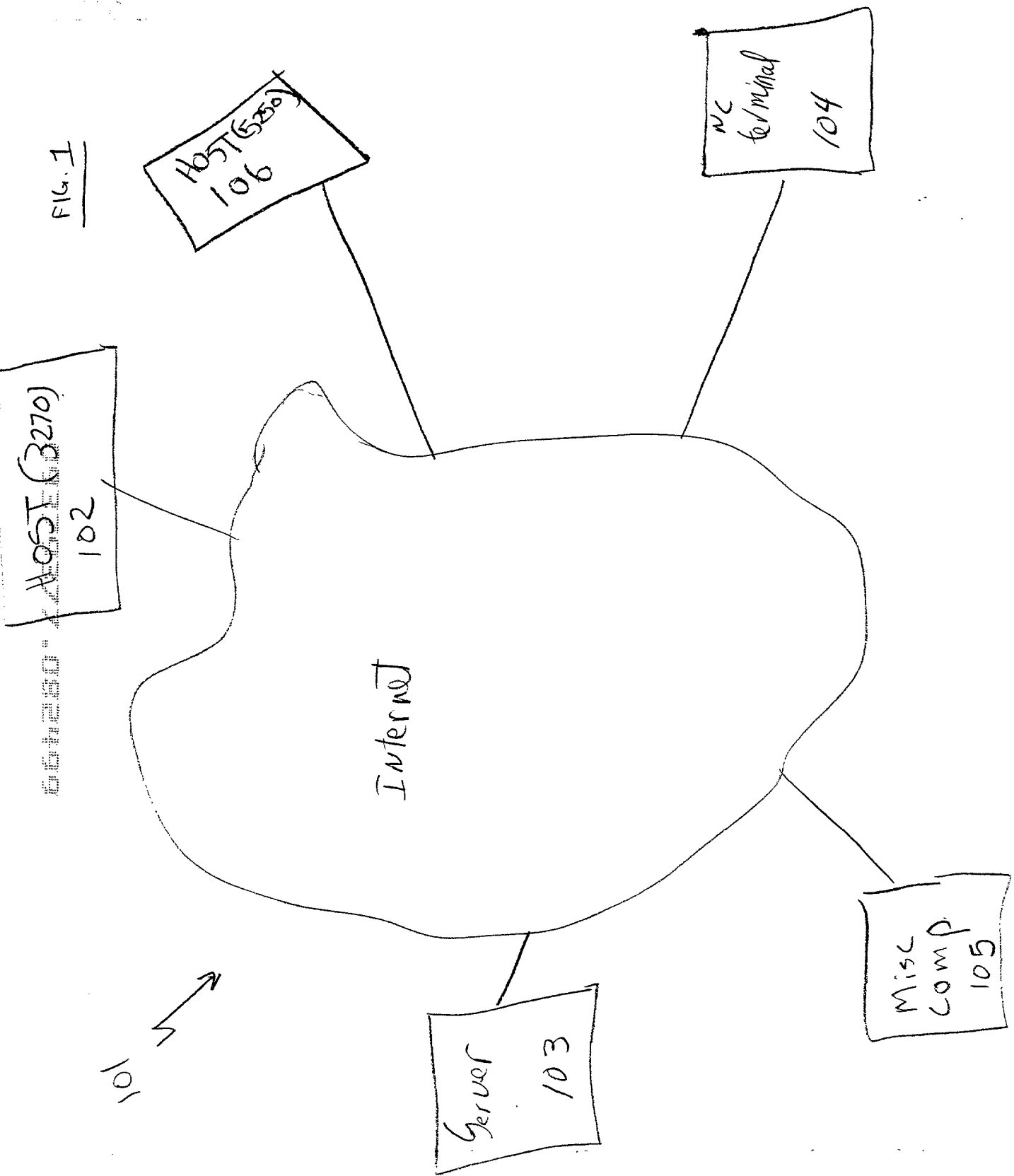
6. The method of claim 4 wherein said context sensitive display information is a list of available choices for a field.

## ABSTRACT

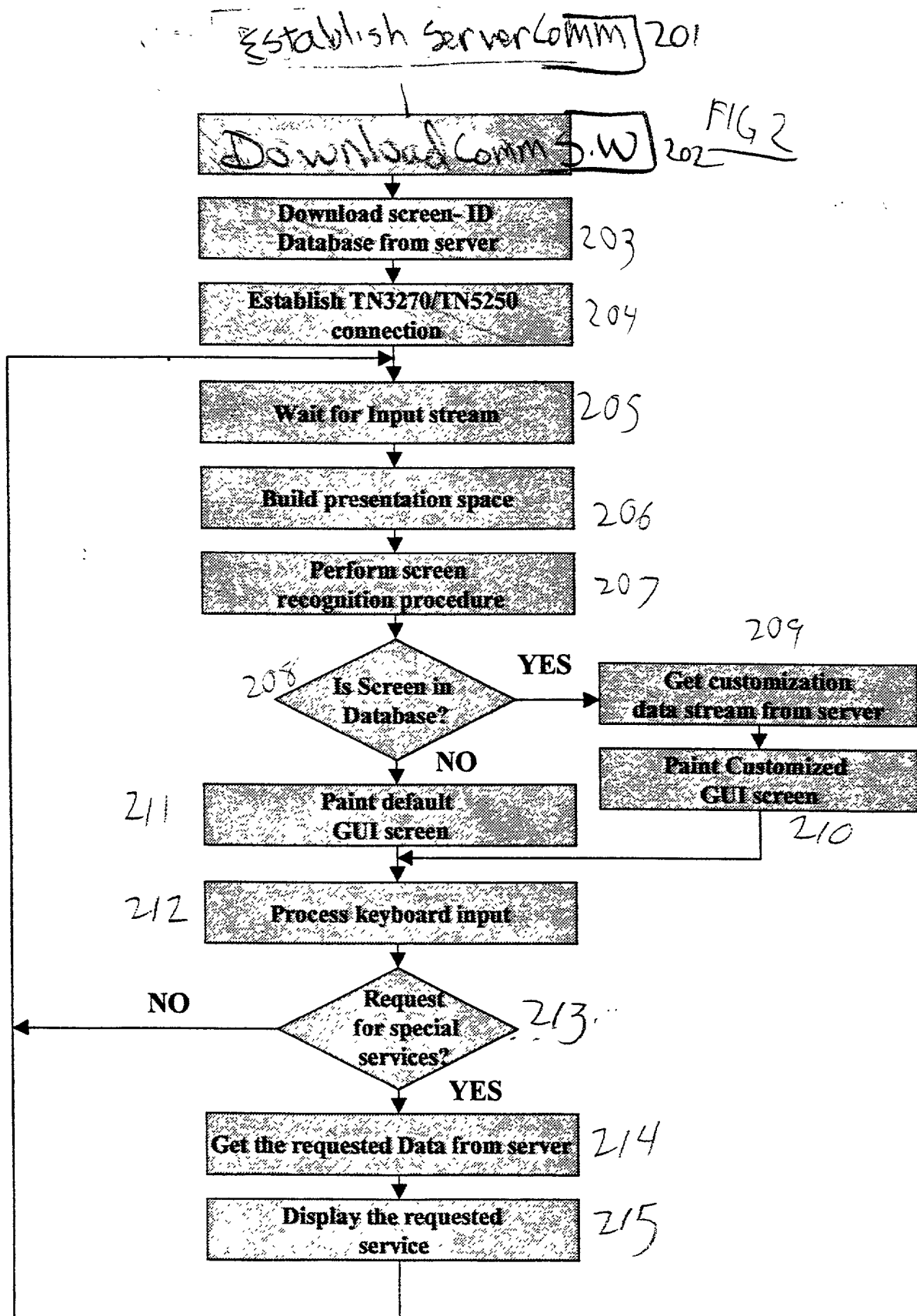
An improved technique of allowing terminal emulators to communicate with remotely located hosts comprises the steps of communicating first with a server which downloads communications software to the terminal emulator. The communications software is then utilized to communicate with the host, and screens of information downloaded by the host are recognized by the NC terminal. The terminal then communicates with the server to determine how to present such downloaded screens to a user.

FIG. 1

FIG. 1



# ResQ!Net Java Applet Flow



## Declaration and Power of Attorney

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled CONFIGURABLE TERMINAL CAPABLE OF COMMUNICATING WITH VARIOUS REMOTE COMPUTERS the specification of which (check one)   X   is attached hereto.   X   was filed on July 10, 1997, as Application Serial No. 08/889,975 and was amended on            (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37 Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

### Prior Foreign Application(s)

NONE

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

### Prior United States Application(s)

NONE

I hereby declare that all statements made herein of my own knowledge

are true and that a. statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

And I hereby appoint: **Michael R. Gilman** (Reg. No. 34,826) and  
**Jeffrey I. Kaplan** (Reg. No. 34,356)

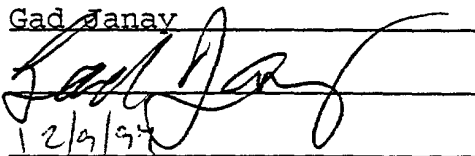
whose address is KAPLAN & GILMAN, 900 Route 9 North, 5th Floor, Woodbridge New Jersey 07095 -- telephone (732) 634-7634-- jointly and severally my attorneys with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.

Direct correspondence and telephone calls to: Jeffrey I. Kaplan, Esq.

Full name of first joint inventor:

Gad Yanay

Inventor's Signature:



Date:

12/9/97

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Citizenship:

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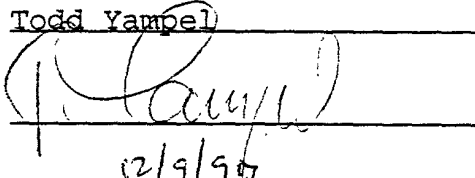
Post Office Address:

Same as the above.

Full name of second joint inventor:

Todd Yampel

Inventor's Signature:



Date:

12/9/97

Residence:

1336 East 10th Street  
Brooklyn, NY 11230

Citizenship:

U.S.A.

Post Office Address:

Same as the above.